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10/046,718	01/17/2002	Yoshiharu Maeno	M5920.0000/P000	4855

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EXAMINER

BELLO, AGUSTIN

ART UNIT PAPER NUMBER

2633

DATE MAILED: 07/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/046,718	Applicant(s) MAENO, YOSHIHARU	
	Examiner Agustin Bello	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/9/02</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2, 19, 31, 35, and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims listed fail to make clear whether the calculated total sum of the reference optical intensity values is compared to the individually measured intensity values as recited in the claims from which these claims depend or whether the applicant intends to claim that the calculated total sum of the reference optical intensity values is compared to the a total sum of individually measured intensity values. For example, in claim 2 the applicant claims that the system compares the measured optical intensity value with the total sum of reference values, while claim 1 compares the a single measured intensity value with a single reference value.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 10-14, 18-22, 24-28, and 30-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis (U.S. Patent No. 6,798,991) in view of Bai (U.S. Patent No. 6,735,395).

Regarding claims 1, 18, 30, and 36, Davis teaches an optical network comprising: a first optical switch (reference numeral 42 in Figure 3) for connecting a plurality of input ports to a plurality of output ports in response to a control message; a second optical switch (rightmost reference numeral 12 in Figure 1, reference numeral 42 in Figure 3) for connecting a plurality of input ports to a plurality of output ports in response to said control message; a plurality of optical transmission links (reference numeral 28 in Figure 3) for connecting a transmitting side to a receiving side; at least one optical transmission element (reference numeral 36 in Figure 3) disposed in said optical transmission link for establishing a plurality of logical channels from said the transmitter side to the receiver side, a controller (reference numerals 14 in Figure 1, 26 in Figure 2, 26 in Figure 3, 27 in Figure 3) associated with said optical transmission element, the controller including a memory (reference numeral 25 in Figure 2) and creating an entry in the memory for each of said logical channels in response to said control message (column 3 lines 39-44) for mapping at least one attribute of said each logical channel to a reference optical intensity value. While Davis provides a controller which monitors the output of the optical signals output from the system (column 5 lines 22-35), Davis fails to specifically teach that said controller measures optical intensity of each of said transmission links and compares the measured optical intensity with the reference optical intensity value mapped in said memory to the logical channel established through said measured transmission link for management of said optical transmission element. However, Bai, in the same field of optical communication, teaches that this concept is well known in the art (column 5 line 65 – column 6 line 6). One skilled in the art could have expected a reasonable degree of success in implementing the measurement and comparison method of Bai in the device of Davis since both system measure the monitor the performance of

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the transmission equipment and use controllers to achieve optimal signal transmission.

Furthermore, one skilled in the art would have been motivated to employ the technique of Bai in the system of Davis since Bai's technique provides a cost effective, integrated solution for wavelength and power stabilization of all channels in a WDM communication system (column 2 lines 11-14 of Bai). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use the controller of Davis to measure the optical intensity of each of said transmission links and compare the measured optical intensity with the reference optical intensity value mapped in said memory to the logical channel established through said measured transmission link for management of said optical transmission element.

Regarding claims 2, 19, 31, 35, and 37, *as best understood in view of the 35 USC §112 rejection above*, the combination of Davis and Bai teaches that the controller calculates (e.g. via the various controllers in Davis and the microprocessor in Bai) the total sum of reference optical intensity values mapped in said memory to a plurality of logical channels (column 5 lines 32 of Bai) established through said each transmission link and compares the measured optical intensity with said total sum (column 5 line 60 – column 6 line 6 of Bai) for management of said optical transmission element.

Regarding claims 3, 20, and 32, the combination of Davis and Bai teaches that at least one attribute represents one of wavelength, transmission rate, and data format (e.g. wavelength and intensity throughout Bai).

Regarding claim 4, the combination of Davis and Bai differs from the claimed invention in that it fails to specifically teach that said controller revises said entry in response to control message indicating a revision of said at least one attribute. However, Davis teaches that the

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memory used in the system is of the ROM/RAM type that is well known in the art as being rewritable. Davis further teaches that these memories are under the control of network personnel (column 3 lines 39-46), thereby suggesting that they are revised periodically if not constantly. As such, one skilled in the art would clearly have recognized that it would have been possible to revise the memory entries in response to control messages indicating a revision of system attributes. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to revise the memory entries in response to control messages indicating a revision of system attributes.

Regarding claims 5 and 39, the combination of Davis and Bai teaches that said first and second optical switches respond to the control message for clearing said logical channels (column 3 line 61 – column 4 line 3), but differs from the claimed invention in that it fails to specifically teach that said controller deletes said entry from said memory in response to a control message indicating a release of a logical channel. However, Davis teaches that the memory used in the system is of the ROM/RAM type that is well known in the art as being rewritable. Davis further teaches that these memories are under the control of network personnel (column 3 lines 39-46), thereby suggesting that they are revised periodically if not constantly which naturally would have involved deletion of no longer useful parameters. As such, one skilled in the art would clearly have recognized that it would have been possible to delete the memory entries in response to control messages indicating a release of a logical channel. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to delete the memory entries in response to control messages indicating a release of a logical channel.

Regarding claims 6, 33, 34, and 38, the combination of Davis and Bai teaches that said controller detects a fault in said optical transmission element based on the measure optical value and a reference optical intensity value mapped in said memory (column 5 lines 13-21 of Davis).

Regarding claims 7 and 21, the combination of Davis and Bai teaches that said optical transmission element comprises a wavelength division multiplexer (reference numeral 24 in 3 of Davis) for multiplexing optical signals from a plurality of optical links from said first optical switch into an optical multiplex signal.

Regarding claims 8 and 22, the combination of Davis and Bai teaches that said optical transmission element comprises a wavelength division demultiplexer (reference numeral 24 in Figure 3 as part of rightmost element 12 in Figure 1 of Davis) for demultiplexing optical signals into a plurality of optical component signals.

Regarding claims 10, 13, 24, and 26, the combination of Davis and Bai teaches said wavelength division multiplexer further comprises: a plurality of optical variable attenuators (reference numeral 311 in Figure 3 of Bai) for controlling intensity of a plurality of incoming optical signals from said first optical switch, and a plurality of optical intensity detectors (reference numeral 333, 343 in Figure 3 of Bai; also inherent in the monitoring process of Davis) for producing a plurality of signals indicating intensity of said incoming optical signal said controller (reference numeral 350 in Figure 3 of Bai) controlling each of said optical variable attenuators according to a difference between the measured optical intensity and said reference intensity value mapped in said memory.

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Regarding claim 11, 25, the combination of Davis and Bai teaches that said controller uses said difference for detecting a fault in one of a plurality input optical circuits of said wavelength division multiplexer (column 5 lines 13-34 of Davis).

Regarding claims 12, 14, 27, and 28, the combination of Davis and Bai teaches that said wavelength division multiplexer further comprises an output optical detector (reference numeral 333, 343 in Figure 3 of Bai) for producing a signal indicating intensity of an optical multiplex signal from said multiplexer, wherein said controller uses the signal from the output optical detector as said measured optical intensity and detects a difference between the reference optical intensity and the measured optical intensity for detecting a fault in an output circuit of said wavelength division multiplexer (column 5 lines 13-34 of Davis).

5. Claims 9, 15, 23, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis in view of Bai, as applied to claim 1 above, and further in view of Terahara (U.S. Patent No. 6,654,561).

Regarding claims 9 and 23, the combination of Davis and Bai differs from the claimed invention in that it fails to specifically teach that said optical transmission element comprises an optical amplifier. However, Terahara, in the same field of optical communication systems, teaches that employing and controlling an optical amplifier (Figure 1) in an optical communication system is well known in the art. One skilled in the art would have been motivated to implement the teachings of Terahara in the device of the combination of references in order to monitor and control the intensity of the signals not only at the transmitter and receiver, but throughout the system. Therefore, it would have been obvious to one skilled in the

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art at the time the invention was made to include and control an optical amplifier as taught by Terahara in the system of the combination of references.

Regarding claims 15 and 29, the combination of Davis, Bai, and Terahara teaches that said optical amplifier comprises an optical amplifying medium (reference numeral 304 in Figure 19B of Terahara) for amplifying an optical multiplex signal; an excitation energy source (reference numeral 313, 314 in Figure 19B of Terahara) for pumping optical energy into the optical amplifying medium; an input optical detector (reference numeral 312 in Figure 19B of Terahara) for producing a indicating intensity of an optical multiplex signal supplied to said optical amplifying medium, and an output optical detector (reference numeral 317 in Figure 19B of Terahara) for producing a signal indicating intensity of the amplified optical multiplex signal from said optical amplifying medium, said controller (reference numeral 316 in Figure 19B of Terahara) controlling said excitation energy source according to a difference between the measured optical intensity and said reference intensity value mapped in said memory.

6. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis in view of Bai as applied to claim 1 above, and further in view of Izumi (U.S. Patent No. 6,466,348).

Regarding claim 16, the combination of Davis and Bai differs from the claimed invention in that it fails to specifically teach that said at least one transmission element comprises a wavelength division multiplexer, an optical amplifier and a wavelength division demultiplexer connected in series in said optical transmission links and wherein said controller is one of a plurality of first, second and third controllers associated with said multiplexer, said amplifier and said demultiplexer respectively. However, these types of amplifiers are well known in the art.

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Izumi teaches such an amplifier (as seen in Figure 21). One skilled in the art would have been motivated to employ this type of amplifier in order to have the ability to amplify each of the plurality of optical signals individually. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include the type of amplifier taught by Izumi in the device of the combination of references.

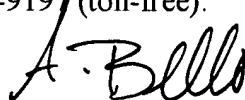
Regarding claim 17, the combination of references teaches that said control message is a multicast message transmitted over a common channel to said first and second optical switches and said first, second and third controller (column 6 lines 25-39 of Davis).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


AGUSTIN BELLO
PATENT EXAMINER